Preface

This is the report of Priority Expert Panel D: Symptom Management--Acute Pain, one of a series of expert panels convened by the National Center for Nursing Research (NCNR)[1] in conjunction with the development of the National Nursing Research Agenda (NNRA).

The development of the NNRA began in January 1988 with a conference to develop broad priorities for the then NCNR. Approximately 50 nurse scientists with varied areas of expertise attended this conference at the NCNR's invitation. The resulting draft priorities were subsequently reviewed and reconceptualized by the NNRA Steering Committee, a subcommittee of the NINR's National Advisory Council for Nursing Research. The Steering Committee is cochaired by the Director of the NINR and a member of the Council, with committee members drawn from both Council membership and NINR senior staff.

The Steering Committee's refinement of the broad priorities resulted in the publication of the following seven more specific NINR priority areas: Low Birthweight--Mothers and Infants; HIV Infection--Prevention and Care; Longterm Care for Older Adults; Symptom Management; Health Promotion for Older Children and Adolescents; Nursing Informatics--Enhancing Patient Care; and Technology Dependency Across the Lifespan. For each of these areas, a Priority Expert Panel is constituted, charged with developing the priority area in depth and asked to make recommendations for more specific priorities. Doing so requires that the panels make difficult choices between a number of

highly important research areas within the Panel's mandated scope.

The symptom management priority specified by the 1988 conference on research priorities was treated in a slightly different way from the process used for the other priorities. Because the area of symptom management is so vast, a small panel of nurse researchers was initially constituted to advise the NINR on the most important symptom or symptoms to be addressed (p. xi). That panel considered a large array of symptoms and decided on **pain** as its highest priority. Subsequently , an interdisciplinary Priority Expert Panel with expertise in the area of pain was constituted (p. vii) to further develop this priority.

To facilitate the Panel members' decision-making, the Steering Committee developed "Criteria for Promising Dimensions." Priority areas should:

· Represent a major current or future health care need.

· Be on the cutting edge of science, with potential to contribute to the development of new knowledge.

· Constitute an opportunity for nursing to make a unique contribution to basic research or a unique opportunity for nursing practice research because the basic knowledge base is adequate.

· Have potential for nursing research to make a unique contribution in the resolution of a health care or system problem or phenome-non.

[1]In June 1993, the NCNR was renamed the National Institute of Nursing Research (NINR).

· Have potential to relieve a costly health care burden for patients and/or the delivery system.

· Have an adequate number of nurse scientists available, or be promising for training.

· Be of concern to nursing while receiving minimal attention from other National Institutes of Health components or other Department of Health and Human Services agencies.

The process used to develop the NNRA has been described in an editorial in the *Journal of Professional Nursing* entitled "Evolving Clinical Nursing Research Priorities: A National Endeavor" (Hinshaw, Heinrich, & Bloch, 1988), in another paper (Bloch, 1990), and in Volume 1 of this series of reports (National Center for Nursing Research, 1993). This process and the format of the resulting publications were adapted from those used by the National Eye Institute at the National Institutes of Health (NIH) (National Institutes of Health, 1983).

The NNRA report set will consist of eight volumes. Volume 1, the Steering Committee's summary report, introduces the series. Volumes 2-8 are the reports of the seven Priority Expert Panels.

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Summary

Pain is a critical and prevalent health problem. For example, the prevalence among hos-pitalized individuals is high. Estimates indicate that 40 to 60% of hospitalized verbal children report mod-erate to severe pain (Hester, Foster, Kristensen, & Bergstrom, 1989; Johnston, Jeans, Abbott, Grey-Donald, & Edgar, 1988; Mather & Mackie, 1983) and 58 to 75% of hospitalized adults report excru-ciating pain (Cohen, 1980; Donovan, Dillon, & McGuire, 1987; Marks & Sachar, 1973). Among postoperative patients, 74% experience moderate to unbearable pain 24 hours postoperatively, while 65% experience moderate to unbearable pain 72 hours postoperatively (Owen, McMillan, & Rogowski, 1990).

Acute pain, such as that experienced fol-lowing surgery, was once considered inevitable and relatively harmless. However, current research in animal models suggests that postoperative pain, in and of itself, may have severe deleterious effects on immune function and may be related to increased tu-mor growth (Liebeskind, 1992).

Pain is costly for individuals and society. In addition to direct health care costs, pain can significantly affect the quality of life of an individual and cause disruptions in sleep, eating, mobility, and overall functional status. In the hospitalized patient, pain may be associated with increased length of stay, longer recovery time, and poorer patient outcomes, all of which have health care quality and cost implica-tions (Acute Pain Management Guideline Panel, 1992).

Because pain was identified as a critical problem for which the nursing discipline could continue to make a substantial contribution, the original Priority Expert Panel on Symptom Manage-ment, convened by NINR in 1989, selected pain as having the highest priority for development. In response to this recommendation, the current panel was formed and charged with reviewing the state of the science of pain management. The Panel identi-fied knowledge gaps and the resulting needs and opportunities for future research and made specific recommendations for future research.

To delineate the problem, the Panel chose to focus on acute and episodic pain only, and omitted pain associated with obstetrics, chronic pain such as is experienced in low back conditions, and headache. The omissions do not negate the importance of these areas; rather they recognize the extensiveness of the literature and the need to review these areas separate-ly. Acute pain is defined as pain that has a recent onset, has a duration of less than three months, subsides as healing occurs, may be associated with hyperactivity of the autonomic nervous system, and is often accompanied by anxiety. In addition to this category of pain that generally accompanies acute in-jury, disease, or surgery, episodic acute pain, which accompanies exacerbations of chronic conditions such as arthritis, cancer, and sickle cell anemia, is inclu-ded in this report.

A developmental approach to pain management was selected, as it provided the Panel an opportunity to identify implications for research that targets not only the group that most commonly experiences pain - the adult - but also other vulnerable groups; namely, infants, children, adolescents, and the elderly. The Panel also concluded that pain is a complex phenomenon that may encompass physiologic, sen-sory, affective, cognitive, behavioral, and socio-cultural dimensions; this perspective is reflected throughout the report.

Assumptions underlying the work of the Panel included the following:

- Pain is a subjective phenomenon.
- The nurse plays a key role in the assessment and management of pain.
- The problem of pain assessment and management and the conduct of pain research are interdisciplinary issues.
- Nurses' contributions to pain research in-clude topics specific to the clinical nurse's role in pain management and the entire spec-trum of pain research from basic science to program evaluation of pain guideline appli-cations.
- Pain should be prevented when possible.

Organization of the Report

Following an introductory chapter, the next chapter presents the overall conceptualization of pain as a multidimensional phenomenon and sets the organizational pattern for the rest of the chapters. The next four chapters follow a developmental framework in order of increasing age. Chapters on pain in preverbal children (birth to 2 years of age) and pain in children and adolescents (3 - 18 years of age) are followed by chapters on pain in the adult and pain in the elderly. The final chapter focuses on the setting in which most pain is managed, and how that setting influences pain management.

The pattern of each chapter focusing on a specific age population includes research on each dimension, followed by research on assessment, pharmacologic interventions, and non-pharmacologic interventions. The state of the science in each of these sections is developed, and gaps identified where evident. Each chapter ends with a section on the re-search needs and opportunities that flow logically from the state of science reviews followed by recom-mendations for future research.

Some redundancy exists among chapters. The Panel has deliberately retained this redundancy because some readers may focus on single chapters without reading the entire document. All readers are encouraged to peruse the introductory chapter (Chapter 1) and the conceptual framework chapter (Chapter 2) as a basis for understanding the chapters targeting specific age groups.

Summary of Recommendations

The Panel's recommendations, grouped by chapter heading, are based on an assessment by the Panelists and their consultants of the current state of knowledge and research needs and opportunities in the area of acute pain prevention, assessment, and management. The specific recommendations do not appear in order of priority. They are designed to serve as a guide and are not intended to present the only promising avenues of research for nursing prac-tice in this area.

Chapter 2. The Nature of Pain: A Conceptual Perspective

· Investigate the six dimensions of pain, (physiological, sensory, affective, cognitive, behavioral, and socioculutral) exploring their individual components as well as the contri-bution of each dimension to pain as a dy-namic process; focus in particular on the affective, cognitive, behavioral, and socio-cultural dimensions with special attention to vulnerable populations.

· Determine the critical assessment compo-nents for each dimension and test across patient populations.

· Design and test strategies for management of pain that address the dimensions of pain, are multimodal and interdisciplinary in nature, influence the dimensions of pain in predicted directions, and result in positive patient out-comes.

· Determine appropriateness and adequacy of existing approaches for assessing the six dimensions of pain with particular attention to the needs of culturally diverse popula-tions; develop tools to meet their needs if necessary.

· Test the dynamic interplay of the multidimensional nature of pain, assessment, man-agement, and outcomes.

Chapter 3. Pain in Preverbal Children

· Expand the basic understanding of the neural pathways for pain in preverbal children.

· Explore the consequences of invasive procedures on the development of neural path-ways.

· Differentiate pain responses from irritability and agitation.

· Develop developmentally appropriate tools to measure different types of pain.

· Focus studies on older infants and toddlers in addition to preterm and term neonates and infants under six months.

· Specify pain issues for children with special needs, such as those with multiple handi-caps, disorders of sensory mechanisms, cog-nitive impairments, a history of abuse, mul-tiple invasive procedures such as high risk premature infants, or children of substance abusers.

· Examine the socioeconomic and cultural issues that affect pain expression and management especially for children of different ethnicities.

· Test the effectiveness of pharmacological and nonpharmacological strategies simulta-neously and singly for relieving pain.

· Examine the roles and effectiveness of parents and other family members in caring for children with pain.

· Examine the integration of pain assessment and management procedures into clinical practice.

Chapter 4. Pain in Children and Adolescents

· Document the prevalence of pain related to trauma, treatment, diagnostic tests, and procedures.

· Develop and test instruments to assess the behavioral dimensions of pain.

· Evaluate the use of a standardized tool and/or protocol to assess pain.

· Validate clinical impressions that influence pain assessment and management strategies.

· Examine the link between physiological indicators of pain and behavioral and self-report responses.

· Document the incidence of analgesic side effects and evaluate the extent to which opiates can be used safely.

· Examine the synergistic effect of nonpharmacologic strategies when used in conjunc-tion with each other or with pharmacologic strategies for managing pain.

· Evaluate high technology methods for delivering analgesics including variables influ-encing effectiveness of use.

· Examine attitudes and the decision making process related to safe and effective anal-gesic management.

· Evaluate the effectiveness of preparing children and adolescents for anticipated pain experiences.

· Test patient-centered variables including satisfaction with pain relief, preference for assessment and management approaches, self-efficacy beliefs, fears and concerns regarding taking drugs, gender, and ethnicity as they relate to assessment and management strategies.

· Evaluate strategies for assisting parents to prepare and support children for painful ex-periences and for assessing and managing pain.

· Address pain management issues for underrepresented populations including develop-mentally disabled, multiple handicapped, substance abusers, those with other socially stigmatizing conditions, and culturally diverse populations.

· Identify the factors including beliefs and attitudes that impede effective pain manage-ment; test strategies for changing or modify-ing beliefs and attitudes that hinder effective pain management in children and adole-scents.

Chapter 5. Acute and Episodic Pain in the Adult

· Design and test approaches to pain assessment that are culturally sensitive and can be useful for both clinical research and clinical practice.

· Develop and test interventions for the suffering component of pain.

· Test approaches for the application of cur-rently available guidelines for the clinical management of pain. This may take the form of demonstration projects or dissemina-tion projects, but would necessitate inclusion of patient pain outcomes as a component of evaluation.

· Test appropriateness and adequacy of nonpharmacologic approaches to pain, including their impact on the dimensions of pain and their relationship to pharmacologic approaches. Emphasis on cognitive and physical approaches provides a beginning scientific foundation on which to build the clinical testing of specific nonpharmacologic approaches.

· Investigate the physiological dimension of pain, exploring physiological mechanisms involved, neurotransmitters, opioid recep-tors, and the impact of pain and pain relief on the immune system.

Chapter 6. Acute Pain in the Elderly

· Test assessment tools to determine if they are cognitively appropriate, practical, reliable, and valid.

· Identify behavioral indices of pain in cognitively impaired elderly.

· Develop and test measures of the effectiveness of nonpharmacological pain manage-ment strategies in the elderly and the effects of combined nonpharmacological and phar-macological interventions.

· Develop and test methods to examine age-related differences in the meaning of pain.

· Identify factors in caregivers' (spouse, family members, friends, significant others) attitudes and knowledge about pain that influence their management of the indivi-dual's pain and the pain behavior of the individual.

· Develop assessment tools that are applicable to various ethnic groups.

· Develop a research base on the effects of acculturation on various ethnic groups and whether the length of time immigrants spend in this country influences their pain experi-ence and manifestations.

· Develop nursing care strategies in pain assessment issues; effectiveness of pharmacological interventions, nonpharma-cological interventions, alone and in com-bination; and pain education for patients, caregivers, and patients' families.

Chapter 7. Pain Management Practices

· Determine the effects of innovative pain management educational programs on patient and healthcare provider behaviors, attitudes, and knowledge.

· Evaluate the interaction among patients, physicians, and nurses within the organiza-tional context on patient outcomes such as pain, anxiety, satisfaction with care, length of stay, and costs.

· Identify organizational variables that affect the effectiveness of pain management pro-grams on patient outcomes such as pain, anxiety, satisfaction with care, length of stay, and costs.

· Evaluate the effectiveness of programs designed to change pain management prac-tices.

· Examine ways to address the education-practice gap related to pain management.

· Determine the effects of informal unit standards that guide pain management prac-tices on clinical units.

· Evaluate the effectiveness of formalized standards, policies, and guidelines for man-aging pain on patient outcomes such as pain, anxiety, satisfaction with care, length of stay, and costs.

· Evaluate programs for educating the public about pain.

· Examine the costs, benefits, and harms of pain management programs in various set-tings such as the hospital, day surgery, clinics, and home care.

· Evaluate the effectiveness of acute pain management services on patient outcomes such as pain, anxiety, satisfaction with care, length of stay, and costs.

· Evaluate the effectiveness of societal programs such as state-level cancer pain initiatives and the World Health Organiza-tion pain management initiatives on the undertreatment of pain.

Implementation of the Plan

The National Nursing Research Agenda (NNRA) represents a major effort of the NINR to specify priorities for nursing research funding. The purposes of the NNRA are to: provide structure for selecting scientific opportunities and initiatives; promote depth in developing a knowledge base for nursing practice; and provide direction for nursing research within the discipline. Dr. Ada Sue Hinshaw, Director of the NINR, has stated the philosophy as follows:

The need to target certain high-priority health care concerns of society for the discipline's scientific endeavors would allow focusing a portion of nursing resources on relevant areas in which the profession is judged to have the strongest influence. Over time, the targeting of specific research priority areas will also deepen the nursing science base in the targeted substantive fields. Given the breadth of nursing research, if the profession wishes to be societally relevant as well as build excel-lence in science, both the scientific endea-vors and resources need to be partially fo-cused on major areas of research priorities determined by the nursing scientific com-munity (Hinshaw, 1988, p. 56)

The successful implementation of the recommendations of the Priority Expert Panel on Symptom Management: Acute Pain is dependent on the sub-mission of applications for research, research training, and research career development awards which are responsive to the priority areas recom-mended by this Panel. Several methods will be used to encourage the submission of such applications, a process that has already begun. The publication of this Report and its distribution to multiple audiences, foremost of which is the potential applicant pool, will constitute the major dissemination effort.

The major implementation activities will be in the form of Requests for Applications (RFAs) and Program Announcements (PAs) published in the *NIH*

Guide for Grants and Contracts. Both mechanisms are designed to stimulate application activity, and both specify the interests of the NINR in some detail. In addition to these specific initiatives, the purpose of this report is to stimulate meritorious applications in the area of acute pain for submission through the established and regular review cycles.

Virtually all funding mechanisms used by the NINR can be used. Applicants are encouraged to contact NINR program staff in the early stages of application development to discuss their preliminary plans for applications. All applications are subject to the dual review system normally used at the National Institutes of Health (NIH), where an application is reviewed for scientific merit by a scientific review group, and for programmatic considerations by the National Advisory Council for Nursing Research (or another specially constituted group). Only a portion of the NINR's resources will be used for applications focused on the NINR's specified priorities; a significant amount of NINR funds will remain avail-able for applications that address topics other than the priority areas, and are judged by the peer review system to be of high scientific merit.

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